

## **REMARKS**

This is in response to the Office Action mailed March 15, 2004. Claims 1-13 are currently pending and at issue. No new matter has been added. Reconsideration of the application is respectfully requested.

### **Objection to the Specification**

The Examiner objects to the amendment to the specification filed on December 1, 2003 as allegedly introducing new subject matter into the disclosure. As requested by the Examiner, the phrase " which is hereby incorporated by reference in its entirety" has been deleted from the cross-reference section on page 1, line 2 of the specification. Therefore, this objection should be withdrawn.

### **Rejections Under 35 U.S.C. § 103(a)**

Claims 1-13 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Jollez et al. (WO 99/60027) (" Jollez") in view of Toshkov et al. (U.S. Patent No. 3,954,727) ("Toshkov") and further in view of Gross et al. (U.S. Patent No. 6,344,109) ("Gross"). Jollez is cited by the Examiner as disclosing a process of making high purity microcrystalline cellulose, including the steps of preparing a pulp by repulping prior to a "s team explosion treatment." The Examiner alleges that Jollez teaches a process according to claim 1, except for the steps of cooking of the pulp in

the reactor, pressing of the pulp, and decompacting of the pulp as recited in steps b), c), d), and e). The Examiner acknowledges that Jollez is silent with respect to these four steps. The Examiner cites Toshkov as disclosing a process of preparing microcrystalline cellulose according to claim 1 with the exception of the repulping, pressing, and decompaction steps recited in steps a)-c). The Examiner acknowledges that Toshkov is silent with respect to these three steps, but alleges that Toshkov teaches the cooking step missing from Jollez, recited in steps d) and e). The Examiner cites Gross as disclosing a method of preparing a cellulose product including the last two steps missing from Jollez, pressing of the pulp and decompacting of the pulp, as recited in steps b) and c). According to the Examiner, it would have been obvious to modify the process of Jollez in view of Toshkov and Gross to produce the presently claimed process for preparing microcrystalline cellulose.

The rejection is respectfully traversed, and reconsideration is requested.

Claim 1 is not obvious over Jollez in view of Toshkov and Gross for the following reasons: (1) none of the cited references teaches or suggests the step of cooling cooked pulp in a reactor by injecting water into the reactor, as called for in step f); (2) Toshkov teaches away from a process conducted without the use of any mineral acids, as called for in step e); and (3) Toshkov does not call for pretreatment by humidification of the cellulose.

First, none of the cited references teach or suggest the step of cooling cooked pulp in a reactor by injecting water into the reactor, as called for in step f) of the present claims. Jollez discloses a process of producing microcrystalline cellulose by subjecting pulp to a "steam explosion treatment" (Jollez: p. 6, lines 3-4), which injects steam directly into the reactor (Jollez: p. 8, line 12). At the end of the steam explosion, a shearing force is applied causing instant "violent vaporization" of water induced by instant depressurization and a sudden flow of the pulp out of the reactor (Jollez: p. 8, line 28 to p. 9, line 3). There is no disclosure in Jollez that would have motivated a person of ordinary skill to add water to the reactor to cool the pulp, as presently recited in step f) of claim 1. In fact, the step of injecting water directly into the reactor to cool the pulp would be contrary to the teachings of Jollez because Jollez relies upon violent vaporization of water.

Toshkov discloses a process wherein the pulp is heated in an autoclave and "afterwards the mass is cooled" and the pulp is soaked in acidified water. (Toshkov: col. 2, lines 36-38, 52-54). In the instant application, the reactor is fed by vapor directly and the pulp is cooled by exchange of heat with the vapor (condensation). The advantage of such a step is that it allows the product to be quickly cooled to a working temperature without having to dilute it with a large quantity of water. Thus, the reaction time is reduced. There is no disclosure in Toshkov that teaches or suggests the step of cooling the mass by directly injecting water into the autoclave, as recited in step f) of claim 1. Rather, it is more likely that a person of ordinary skill

would understand Toshkov' s disclosure to indicate that the autoclave is both heated and cooled in the same manner, by the standard method of heating and cooling liquids in the jacket of the autoclave. Without any contrary teachings in Toshkov, there is no disclosure that would have motivated a person of ordinary skill to cool the reactor contents by injecting water directly into the reactor.

Gross is directed to a method of softening cellulose pulp with a combination of softening agents (Gross: col. 2, lines 38-41) and does not disclose a cooking step, much less provide any information on how to cool down cooked pulp in a reactor.

Second, Toshkov teaches away from a process conducted without the use of any mineral acids, as called for in the present claims. An essential feature of Toshkov is its use of acids to hydrolyze and chemically deaggregate cellulose. Specifically, Toshkov highlights its use of sulfuric acid in its process as a noteworthy advantage (Toshkov: col. 2, lines 15-22). Furthermore, all of the examples in Toshkov disclose the use of a 1% solution of sulfuric acid (Toshkov: col. 2, lines 28, 43). In contrast, step e) of claim 1 recites that "the cooked pulp is hydrolyzed to form microcrystalline cellulose without the use of any mineral acids." Thus, Toshkov would be more likely to discourage a person of ordinary skill in the art from developing a process that specifically did not use any mineral acids. See *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720 (Fed. Cir. 1990) (finding non-obviousness where

" [t]he closest prior art reference ' would likely *discourage* the art worker from attempting the substitution suggested by [the inventor/patentee]' ").

Third, no pretreatment of the cellulose is carried out in the Toshkov process. In contrast, in the present invention, the cellulose is pretreated to allow humidification of the fibers and reduction in the dimensions of the humidified cellulose blocks, thus allowing for homogenization of the cellulose blocks, thereby rendering the fibers more accessible to heat from the steam treatment.

Therefore, in view of the above, Jollez, Toshkov, and Gross cannot be relied upon to reject claims 1-3, or any of their dependent claims, as obvious. Accordingly, this rejection should be withdrawn.

#### **Rejection for Non-Statutory Double Patenting**

Claims 1-13 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting. The Examiner alleges that claims 1-13 of the present invention are not patentably distinct from claims 1-28 of co-pending U.S. Application Serial No. 10/010,907 (" the ' 907 application").

The rejection is respectfully traversed, and reconsideration is requested.

The doctrine of obviousness-type double patenting allows for " rejection of an application claim when the claimed subject matter is not patentably distinct from

the subject matter claimed in a commonly owned patent." *In re Berg*, 140 F.3d 1428, 1431 (Fed. Cir. 1998). In the case of two pending applications, an Examiner is permitted to make a provisional rejection on the grounds of double patenting where the two applications are "filed by the same inventive entity, or by different inventive entities having a common inventor, and/or by a common assignee." *Manual of Patent Examining Procedure*, § 804. The two applications at issue here are not commonly owned: they do not have the same inventive entity or a single common inventor, nor do they have a common assignee.

Therefore, in view of the above remarks, the '907 application cannot be relied upon for obviousness-type double patenting and this rejection should be withdrawn.

Conclusion


In view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and all pending claims be allowed and the case passed to issue.

If there are any other issues remaining, which the examiner believes could be resolved through either a supplemental response or an examiner's amendment, the examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

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